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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/311,718	05/14/1999	JANG-KUN SONG	06192.0085	1612

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EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/311,718

Applicant(s)

Song et al.

Examiner

Dung Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Mar 25, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 17-22, 27, 30, 35-40, and 44-51 is/are rejected.
- 7) ☒ Claim(s) 13-16, 23-26, 28, 29, 31-34, and 41-43 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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***Response to Amendment***

Applicant's amendment dated 03/25/2002 has been received and entered.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 4-12, 17-22, 27, 30, 35-40 and 44-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455, in view of Koma, US Patent No. 5,608,556.

Regarding claims 1, 22, 27, 30, 35-36 and 47-51, Koike et al. disclose a liquid crystal display (LCD) device (figs. 50-51) comprising:

- a first substrate (10) with a common electrode (24) having a protrusion portion (26p) thereon;
- a second substrate (16) with a pixel electrode (21) having a depressed portion (22d) thereon;
- a liquid crystal layer (20).

The difference between the claims and Koike et al. reference is that the pixel electrode having a plurality of crossing apertures instead of the depressed portion. Koma does disclose a

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crossing aperture can be formed on the pixel electrode (figure 8). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a plurality of apertures on the electrode instead of the depressed portion, since the selection of forming apertures or depresses portion on electrodes would be within the level of ordinary skill in the art. to improve a wide viewing angle.

Regarding claims 4 and 17, the modification to Koike et al. disclose the claimed invention as described above except for the polarizer sandwiching the LCD cell. It would have been obvious to one skilled in the art to form a polarizer attached to an LCD cell surfaces as required for twisted nematic liquid crystal material to work.

Regarding claims 5-10, the modification Koike et al. disclose the claimed invention as described above except for compensation films. It is known in the art to form a compensation film (e.g., retarder film) on the side of an LCD cell for correcting light from the light source (e.g, ambient light or backlight) through the LCD cell. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a compensation films on the outer surface of an LCD cell in order to improve an LCD characteristics as mention above.

Regarding claims 11-12, 18-21, 40 and 44-46, the modification to Koike et al. disclose the claimed invention as described above except for a wedge-shaped of the protrusion . It would have been obvious to one skilled in the art at the time of the invention was made to choice the wedge-shaped for the protrusion, since Applicant has not disclosed that shape solves any stated

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problem or is for any particular purpose and it appears that the invention would perform equally well with the depressed-shape protrusion.

Regarding 37-39, the modification to Koike et al. disclose the claimed invention as described above except for the black matrix. One of ordinary skill in the art would have desired to form a black matrix films overlapping the aperture/protrusion to avoid leaking light in a display region. Therefore, it would have been obvious to one skilled in the art to form a black matrix film overlapping the Koike et al. aperture/protrusion in order to improve an LCD contrast.

3. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455 in view of Koma, US Patent No. 5,608,556, further in view of Bos et al., US Patent 6,141,074.

Regarding claims 2-3, the modification to Koike et al. disclose the claimed invention as described above except for the chiral nematic liquid crystal layer having a negative dielectric anisotropy. Bos et al. do disclose a multi-domain LCD can be form with a positive or negative dielectric anisotropy liquid crystal layer (see Summary of the Invention). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a liquid crystal layer having a positive dielectric anisotropy or negative dielectric anisotropy because the use of one conventional material over another merely depends on the desire of the manufacturer (i.e., homogeneous or homeotropic alignment) and/or the availability and practicality of the material for the chosen manufacturing process (see Summary of the Invention).

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In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a chiral dopant as a component in the liquid crystal material in order to attain an uniform twist in a liquid crystal layer.

***Allowable Subject Matter***

4. Claims 13-16, 23-26, 28-29, 31-34 and 41-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 308-7722.

Any information of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.

DN  
06/15/2002

  
William L. Sikes  
Supervisory Patent Examiner  
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